

Return Address:

National Weather Service
8400 Remount Road
North Little Rock, AR 72118-2203

PRINTED WEATHER INFORMATION --
PLEASE FORWARD TO APPROPRIATE
DEPARTMENTS OR PERSONNEL



Severe Weather



in Arkansas 2005

National Weather Service
Little Rock, Arkansas

SLGT risk

For the first day of the forecast:

- a 5 to 35% chance of large hail, or
- a 5 to 35% chance of damaging winds, or
- a 5% chance of tornadoes.

For the second and third days of the forecast:

- a 15 to 25% chance of any type of severe weather.

MDT risk

For the first day of the forecast:

- a 35 to 45% chance of large hail, or
- a 35 to 45% chance of damaging winds, or
- a 15 to 25% chance of tornadoes.

For the second and third days of the forecast:

- a 35 to 45% chance of any type of severe weather.

HIGH risk

For the first day of the forecast:

- a 45% chance of damaging winds, or
- a 25 to 45% chance of tornadoes.

For the second and third days of the forecast:

- not normally issued.

Roll cloud - A low, horizontal, tube-shaped cloud associated with a thunderstorm gust front. Roll clouds are completely detached from the base of the thunderstorm and appear to be "rolling" about a horizontal axis. They are NOT horizontal funnel clouds.

Rope - A narrow, often contorted funnel associated with the decaying stage of a tornado.

Scud - The common name for stratus fractus clouds. They are small, ragged, low cloud fragments that are usually not attached to a larger cloud base (such as the base of a thunderstorm). They are often seen with and behind cold fronts and thunderstorm gust fronts. These clouds do not produce severe weather. When they are near, or attached to the base of the thunderstorm, they can be mistaken for funnel clouds.

Severe thunderstorm - A thunderstorm with winds of 58 mph (50 knots) or more, or hail 3/4 inch in diameter or larger. Structural damage may imply the occurrence of a severe thunderstorm. Hail and wind are the two elements for classifying a thunderstorm as severe; lightning and flooding rains are elements of the thunderstorm itself.

SPC - The Storm Prediction Center in Norman, OK; formerly known as the National Severe Storms Forecast Center or SELS. SPC issues convective outlooks and all severe thunderstorm and tornado watches for the lower 48 states.

Squall line - A solid or nearly solid line or band of thunderstorms.



Arkansas Governor Mike Huckabee has joined the National Weather Service (NWS) and the Arkansas Department of Emergency Management (ADEM) to urge the citizens of Arkansas to prepare for the upcoming severe weather season.

The Governor has proclaimed **February 14-18, 2005** as "Severe Weather Awareness Week" in Arkansas.

Governor Huckabee is encouraging citizens to use this week to review severe weather safety rules...and to understand the hazards associated with severe thunderstorms.

Important!

To help people prepare for severe weather, a statewide Tornado Drill will be conducted between 9:00 and 9:30 am on Wednesday, February 16, 2005.** Everyone is encouraged to participate! **Notes to media about the drill:** <http://www.srh.noaa.gov/lzk/html/drillnotes.htm>.

During this week, the NWS will transmit severe weather safety information on NOAA Weather Radio (NWR). You can also get information about severe weather on the internet.



The Little Rock NWS office has a site on the internet! This brochure will be found at the following address:

<http://www.srh.noaa.gov/lzk/html/svr.htm>

** If there is bad weather, the alternate date for the Tornado Drill will be Thursday, February 17, 2005 between 9:00 and 9:30 am.

Derecho - A widespread and usually fast-moving windstorm associated with convection. Derechos include any family of downburst clusters and can produce damaging thunderstorm winds over areas hundreds of miles long and more than 100 miles across.

Downburst - A strong downdraft resulting in an outward burst of damaging winds on or near the ground. Downburst winds can produce damage similar to a tornado.

Downdraft - A small-scale column of air that rapidly sinks toward the ground, usually accompanied by precipitation as in a shower or thunderstorm.

Dry line - A boundary separating moist and dry air masses. It is an important factor in severe weather frequency in the Great Plains. It typically lies north-south across the central and southern High Plains during the spring and early summer, where it separates moist air from the Gulf of Mexico and dry desert air from the southwestern states. The dry line typically advances eastward during the afternoon and retreats westward at night. However, a strong storm system can sweep the dryline eastward into the Mississippi Valley, or even farther east, regardless of the time of day.

Fujita Scale (or F-Scale) - A scale of wind damage intensity in which wind speeds are inferred from an analysis of wind damage. All tornadoes, and most other severe local wind storms, are assigned a single number from the scale according to the most intense damage caused by the storm.

- F0 (weak): 40-72 mph, light damage
- F1 (weak): 73-112 mph, moderate damage
- F2 (strong): 113-157 mph, considerable damage
- F3 (strong): 158-206 mph, severe damage
- F4 (violent): 207-260 mph, devastating damage
- F5 (violent): 261-318 mph, (rare) incredible damage

Funnel cloud - A funnel extending from the base of a towering cumulus or cumulonimbus cloud, associated with a rotating column of air that is NOT in contact with the ground. The terms funnel cloud and tornado are NOT interchangeable.

Gust front - The leading edge of gusty surface winds from thunderstorm downdrafts. Passage of the gust front is usually marked by cool, gusty winds. The gust front often precedes the precipitation by several minutes.

Gustnado - A short-lived vortex (rotation) near the ground and not attached to the base of a convective cloud. They often develop along a gust front. They are classified as thunderstorm wind events.

Hook echo - A radar pattern characterized by a hook-shaped (or figure 6-shaped) extension of a thunderstorm echo, usually in the southwest part of the storm. A hook is often associated with a mesocyclone, and indicates favorable conditions for tornado development.

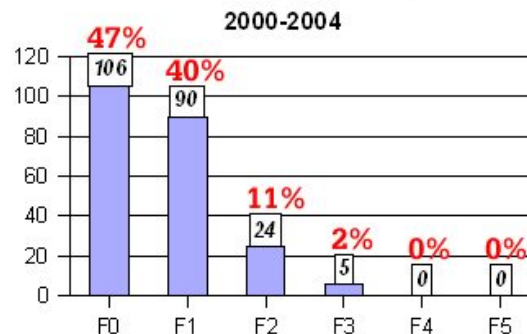
Instability - The tendency for air parcels to accelerate when they are displaced from their original position; the greater the instability, the greater the potential for severe thunderstorms.



Tornadoes

They are the most feared offspring of a severe thunderstorm, and rightfully so. Tornadoes kill roughly 65 people annually across the United States.

Tornadoes in Arkansas



While tornadoes can be deadly, the vast majority are weak (path widths less than 100 yards with wind speeds generally less than 100 mph). In Arkansas, 196 of 225 tornadoes (87%) were classified as "weak" from 2000 through 2004.

None of these weak tornadoes were killers. It was the stronger tornadoes (with wider path widths and more powerful winds) that claimed 6 lives across the state. Tornadoes classified as F3 (158-206 mph winds) were responsible for 4 of the 6 deaths...even though they were spawned only 2% of the time.



Fact: It is common to have many weak tornadoes, and few (or no) lives lost, and a few strong tornadoes but with many lives lost.

The point here is that tornadoes are seldom deadly. If you go to an interior room away from windows on the lowest floor of your home, in most cases you will be safe. One other point...make sure you go to a building on a permanent foundation. Mobile homes

Lightning

One person was killed and two were injured by lightning in Arkansas in 2004.

A 17-year-old boy was killed by lightning at Conway (Faulkner Co.). He was walking across a church parking lot on his way to a school bus stop when he was struck.

The injuries occurred at Bentonville (Benton Co.) and at Dennard (Van Buren Co.).

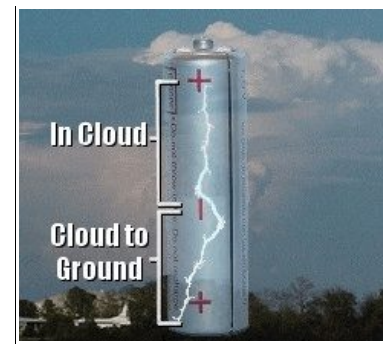


In the picture: In 2004, lightning struck people in Arkansas on April 21st (in Conway), May 13th (in Bentonville) and June 18th (at Dennard).

Lightning

There is a flicker of light in the distance followed by a rumble of thunder. Yet in many cases, outdoor activities will resume until the rain begins. Given how people react, lightning is probably not feared as much as tornadoes...but it is more deadly. Nationwide, more than 70 people are killed by lightning each year.

You can think of lightning as part of an atmospheric battery. It is generated due to the magnetic attraction between the base of a storm cloud (negative charge) and the ground (positive charge). However, to go from cloud to ground, lightning must travel through air...a poor conductor of electricity.



The resistance of the air makes it difficult for lightning to go from point A to point B. Because of this, lightning will tend to go the shortest distance possible...and will strike tall objects such as buildings, antennas and trees. But, since lightning is fighting air to make a connection, it has been known to hit targets randomly...and nowhere near the core of a storm.



Fact: Lightning has been known to strike up to 10 miles away from its parent thunderstorm!

Given that lightning can strike at a distance, waiting until it rains before seeking shelter is probably not a good idea. The National Weather Service realizes this, and has created "Lightning Safety Awareness Week" to educate people of the dangers of lightning. To find out more, go to:

<http://www.lightningsafety.noaa.gov/>

Thunderstorm (Straight-Line) Winds

No fatalities were caused by thunderstorm winds in 2004, but 8 injuries were reported.

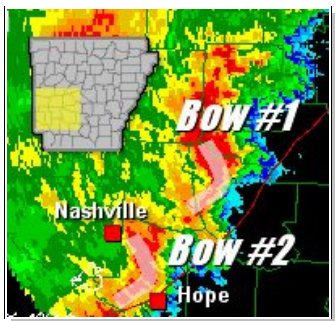
There were two injuries at Hope (Hempstead Co.), two injuries 3 miles northeast of Hope (Hempstead Co.), one injury at Magnolia (Columbia Co.), two injuries 5 miles south of Stamps (Lafayette Co.), and one injury 2 miles north of Taylor (Columbia Co.).

Some of the strongest thunderstorm winds reported during 2004 included:

86 mph: Walnut Ridge (Lawrence Co.).

85 mph: Winthrop (Little River Co.).

80 mph: 12 miles north of Nashville (Howard Co.), at Hope (Hempstead Co.), and 3 miles south of Ozark (Franklin Co.).



In the picture: Several bow echoes (i.e. boomerang shaped lines of storms) swept through the southwest half of Arkansas on 06/01/2004. The bows produced 80 mph wind gusts 12 miles north of Nashville (Howard Co.) and at Hope (Hempstead County).

75 mph: DeQueen (Sevier Co.) and Prescott (Nevada Co.).

Winds such as these occur every year due to thunderstorms in Arkansas, and damage associated with such winds is often mistaken for tornado damage. If all of the winds listed above had occurred with a tornado, the intensity classification would have been F1. So, thunderstorm winds of such magnitude can be expected to produce damage just as severe as an F1 tornado.



Large Hail

No deaths or injuries due to hail were reported in Arkansas in 2004.

The largest hailstones reported during the year included:



For the past few years, AETN (public television) has broadcast a severe weather call-in show featuring a panel of experts including representatives from the National Weather Service, the media, and emergency management. The following are questions often phoned in by the public during the show...

Q. What should I do if I am in my car and see a tornado?

A. The best option would be to drive to a sturdy building. All of the tornado safety rules can be found in a brochure published by the University of Arkansas Cooperative Extension Service. This publication is updated every year. It is written by Newton Skiles, a senior forecaster at the National Weather Service, and Gary Huitink, an extension engineer at the Cooperative Extension Service. You can find the brochure online at:

http://www.uaex.edu/Other_Areas/publications/PDF/FSA-1024.pdf

Q. Is it true that taking shelter under a highway overpass is the wrong thing to do when a tornado is near?

A. Yes. A strong pressure drop around tornadoes creates a suction effect...which may pull you out from under the bridge. Tornadoes also produce rotational winds, with potential injury causing debris swirling around the bridge.



In the picture: Highway overpasses offer little protection from tornadoes.

32. Biggers (Randolph Co.), October 18th, 5:16 PM – A weak (F0) tornado had a path length of 0.5 mile.
33. 2 miles north of Datto (Clay Co.), October 18th, 5:25 PM – A weak (F0) tornado had a path length of 0.5 mile.
34. 5 miles west of Nimmons to 1 mile west of Nimmons (Clay Co.), October 18th, 6:00 PM – A weak (F0) tornado had a path length of 4 miles.
35. 3 miles west of College City to 1 mile northeast of Stonewall (Lawrence, Randolph, and Greene Cos.), October 18th, 6:35 PM – A weak (F0) tornado had a path length of 23 miles.
36. Paragould (Greene Co.), October 18th, 7:10 PM – A weak (F0) tornado had a path length of 0.3 mile.
37. 3 miles northeast of Princeton to 3.2 miles northeast of Princeton (Dallas Co.), October 18th, 7:34 PM – A weak (F0) tornado had a path length of 0.2 mile.
38. 1.5 miles north-northeast of Hagarville to 2 miles north-northeast of Hagarville (Johnson Co.), November 1st, 6:58 AM – A weak (F1) tornado had a path length of 0.5 mile.



In the picture: A couple of chicken houses were heavily damaged by an F1 tornado about 1.6 miles north-northeast of Hagarville (Johnson County) on 11/01/2004.

39. 5.5 miles north of Stephens to 11 miles north-northeast of Stephens (Ouachita Co.), November 1st, 8:50 AM – A weak (F1) tornado had a path length of 6 miles.
40. 2.8 miles southwest of Cherokee Village to 1 mile west-southwest of Cherokee Village (Sharp Co.), November 1st, 9:55 AM – A weak (F0) tornado had a path length of 1.8 miles.
41. 2.5 miles south-southwest of Tulip to 1 mile north-northeast of Tulip (Dallas Co.), November 1st, 10:05 AM – A weak (F0) tornado had a path length of 3.5 miles.
42. 3.3 miles northeast of Leola to 3.5 miles southeast of Prattsville (Grant Co.), November 1st, 10:20 AM – A weak (F0) tornado had a path length of 6 miles.
43. 3.6 miles north of Keo to 2.7 miles south-southwest of Lonoke (Lonoke Co.), November 1st, 12:05 PM – A weak (F0) tornado had a path length of 8.6 miles.

specialize in radio equipment, sell many different brands and styles of Weather Radios. Models that indicate that they are equipped for SAME (Specific Area Message Encoding) allow the listener to program the radio to receive watches and warnings only for the counties that the listener desires. More information on NOAA Weather Radio, including how to program the SAME feature, can be found at:

<http://www.srh.noaa.gov/lzk/html/noaawx1.htm>

Q. What is the largest hailstone ever reported in Arkansas?

A. A hailstone 5 inches in diameter was reported near Newark (Independence County) during the tornado outbreak of January 21, 1999.

In the picture: There were several reports of baseball size hail or larger on 01/21/1999...with this baseball size stone (resting next to a half dollar) collected in northern Pulaski County (central Arkansas).



Q. Is it safe to use a crawl space under a house as a storm shelter?

A. Since this has been asked a number of times, we consulted a severe weather expert who works for an engineering firm and is also a meteorologist. His answer is that a crawl space is not generally suitable for protection from a tornado. If any part of the house begins to collapse, it will fall into the crawl space.

Q. Most tornadoes in Arkansas seem to move from the southwest to the northeast. What other directions do they move?

A. While a southwest to northeast movement is most common, tornadoes in the state can move in any direction. Here is the breakdown:

Southwest to northeast - 64%	West to east – 18%
Northwest to southeast – 9%	South to north – 4%
Southeast to northwest – 2%	East to west – 1%
Northeast to southwest – 1%	North to south – 1%

12. 1.8 miles east of Scotland to 4 miles northeast of Scotland (Van Buren Co.), April 24th 12:17 PM – A weak (F0) tornado had a path length of 2.8 miles.

13. 3 miles northeast of Pettus to 5.3 miles northeast of Pettus (Lonoke Co.), April 24th, 4:12 PM – A weak (F0) tornado had a path length of 2.3 miles.

14. 2.5 miles south of Three Creeks to 0.5 mile northeast of Wesson (Union Co.), April 29th, 12:52 PM – A weak (F1) tornado had a path length of 9 miles.

15. 13 miles south-southeast of Hampton to 6 miles south-southeast of Harrell (Calhoun Co.), April 29th, 1:58 PM – A weak (F0) tornado had a path length of 7.5 miles.

16. 0.4 mile northwest of Jersey to 2.3 miles north-northeast of Jersey (Bradley Co.), April 29th, 2:16 PM – A weak (F0) tornado had a path length of 2.2 miles.

17. 11.7 miles southwest of Warren to 6 miles south-southwest of Warren (Bradley Co.), April 29th, 2:34 PM – A weak (F1) tornado had a path length of 7.8 miles.

18. 2 miles west-southwest of Fordyce to 1.5 mile northwest of Fordyce (Dallas Co.), April 29th, 3:02 PM – A weak (F1) tornado had a path length of 2 miles.

19. 4.1 miles west-southwest of Ivan to 3 miles northwest of Ivan (Dallas Co.), April 29th, 3:15 PM – A weak (F0) tornado had a path length of 4.2 miles.



In the picture: About 3 miles northwest of Ivan (Dallas County), a pole barn was destroyed by an F0 tornado on 04/29/2004.

20. 2.5 miles southwest of Bergman to 3 miles west of Zinc (Boone Co.), May 1st, 1:00 AM – A weak (F0) tornado had a path length of 3.5 miles.

21. 2 miles northwest of Laneburg to 2 miles southwest of Bluff City (Nevada Co.), May 30th, 7:00 PM – A weak (F1) tornado had a path length of 10 miles.

22. 3.8 miles west-southwest of Bearden to 1.8 miles west-southwest of Bearden (Ouachita Co.), May 30th, 7:47 PM – A weak (F0) tornado had a path length of 1.8 miles.

23. 6 miles west of Cherry Valley to 5.5 miles west of Cherry Valley (Cross Co.), May 30th, 8:05 PM – A strong (F2) tornado had a path length of 0.5 mile.

24. 3 miles northeast of Manila (Mississippi Co.), June 2nd, 5:50 PM – A weak (F0) tornado had a path length of 0.3 mile.

Q. I want to look up some data for tornadoes in my county. Where could I find such information?

A. The National Climatic Data Center, which archives all weather data in the United States, maintains a Web site dealing with severe weather. Tornado information is available from 1950 on, and information on other types of severe weather is available from 1993 on. The website address is:

<http://www4.ncdc.noaa.gov/cgi-win/wwwcgi.dll?wwEvent~Storms>

Q. What was the deadliest day for tornadoes in Arkansas history?

A. On March 21, 1952, tornadoes killed 111 people and injured another 772 in Arkansas. Three tornadoes that day affected primarily the northeastern quarter of the state. The best-known was the infamous “Judsonia Tornado” in White County.



In the picture: An aerial shot of Judsonia (White County) following a deadly tornado on 03/21/1952.

Q. I heard about something called a “safe room” that can be used for protection from a tornado in a person’s house. Where can I find out more information?

A. The Federal Emergency Management Agency has a publication that deals with building these reinforced rooms inside a residence. The publication is FEMA 320, “Taking Shelter from the Storm: Building a Safe Room Inside Your House”. You can obtain a copy of FEMA 320 by calling 1-888-565-3896 or visiting the following website: <http://www.fema.gov/fima/tsfs02.shtm>

The State of Arkansas, through the Arkansas Department of Emergency Management, has a program to partially reimburse people for installing storm cellars or building safe rooms. Just visit:

<http://www.adem.state.ar.us> (click on “Storm Shelter”)

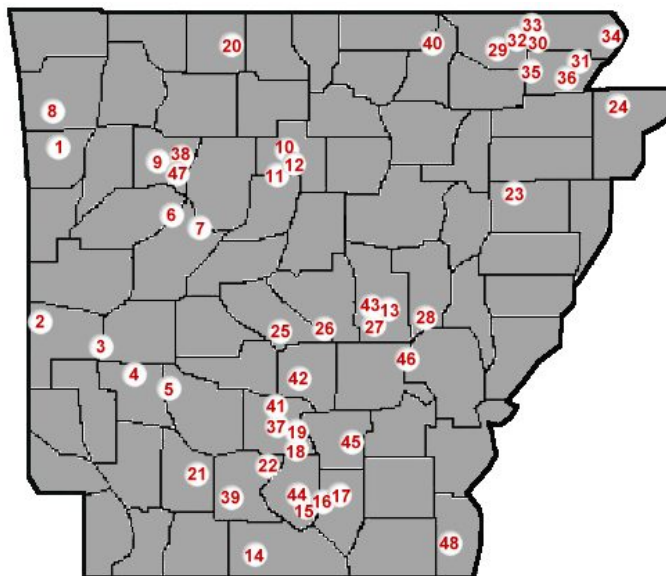
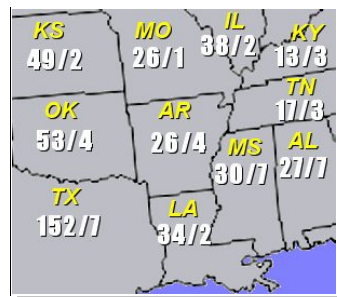


Tornadoes

There were 48 tornadoes in 2004. There were no deaths, but 11 injuries.

Normally, there are 26 tornadoes in Arkansas annually...with 4 lives lost to tornadoes.

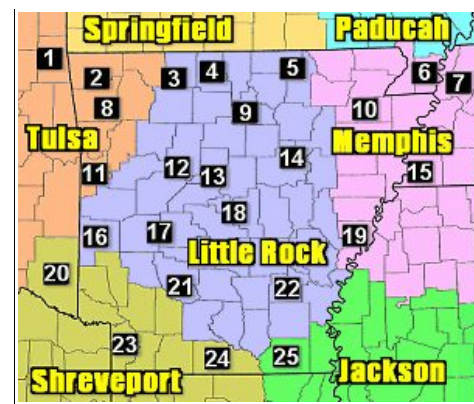
In the picture: The left number represents how many tornadoes occur per year...with the right number reflecting how many people are killed by tornadoes.



In the picture: A plot showing where tornadoes (48 of them) occurred in 2004. The numbers to left match the tornadoes listed on the following pages.



How do you receive watches and warnings from the National Weather Service (NWS)?



The NWS has its own radio network with weather information presented 24 hours a day, 7 days a week. **NOAA Weather Radio** is considered The Voice of the National Weather Service.

In the picture: As of January, 2005...there were 25 NOAA Weather Radio transmitters up and running across Arkansas: (1) Grove OK...162.500 MHz, (2) Springdale...162.400 MHz, (3) Harrison...162.525 MHz, (4) Yellville...162.500 MHz, (5) Cherokee Village...162.475 MHz, (6) Wardell MO...162.525 MHz, (7) Dyersburg TN...162.500 MHz, (8) Fayetteville...162.475 MHz, (9) Mountain View...162.450 MHz, (10) Jonesboro...162.550 MHz, (11) Fort Smith...162.550 MHz, (12) Russellville...162.525 MHz, (13) Morrilton...162.475 MHz, (14) Russell...162.400 MHz, (15) Memphis TN...162.475 MHz, (16) Mena...162.400 MHz, (17) Mount Ida...162.425 MHz, (18) Little Rock...162.550 MHz, (19) Marvell...162.525 MHz, (20) Broken Bow OK...162.450 MHz, (21) Gurdon...162.475 MHz, (22) Star City...162.400 MHz, (23) Texarkana...162.550 MHz, (24) El Dorado...162.525 MHz, and (25) Fountain Hill...162.475 MHz.

To receive information, look for radios equipped with WRSAME (Weather Radio Specific Area Message Encoding) at electronics stores. Program the county Federal Information Processing System code to into the radio (prefix with "005") and you will be